General Plan Description

THP Area Characteristics:

The proposed Northstar Enhancement THP is located in Placer County, California. The THP area is located midway between the Town of Truckee and the north shore of Lake Tahoe, and is oriented to the west of highway 267, within the Northstar California ski resort. The various silvicultural units include forested stands between resort developments, ski runs, ski lift lines, and undeveloped forestlands. Prior to development as a destination ski resort, the THP area has historically been managed for timber production by industrial timber owners. The THP area is accessed by a system of appurtenant seasonal roads that are gated to prevent unregulated and/or public use.

The THP area generally supports Site Class III stands of Sierran Mixed Conifer, White fir, Red fir, Lodgepole Pine, and wet meadow habitat types at elevations of 6200 - 7600 feet above sea level. The understory, where present, is generally dominated by young growth red fir and white fir, Greenleaf manzanita (Arctostaphylos patula), tobacco brush (Ceanothus velutinus), and mountain whitethorn (Cenaothus cordulatus). Major soil types present within the THP area include the Jorge, Tahoma, and Umpa series and/or complexes. These soils consist of moderately deep, well drained sandy loams that formed in material weathered from volcanic rock. Minor soil types include the Fugawee, Meiss, and Waca series and/or complexes that are less deep and weathered from andesite and alluvium. The Erosion Hazard Rating for the THP area was determined to be "Moderate".

Slopes within the THP range from 10 - 55%. The THP area spans the West Martis Creek and Upper Martis Creek watersheds. Watercourses within the THP area include two unnamed Class III tributaries to Schaeffer Creek, a Class I watercourse; West Martis Creek and an unnamed Class I and Class II watercourse that are tributary to it; and two unnamed Class I watercourses that are tributary to Sawmill Reservoir. West Martis Creek is tributary to Martis Creek, which ultimately drains into Martis Creek Reservoir, located approximately 3 miles northeast of the THP area. Martis Creek Reservoir drains into the Truckee River. The Truckee River is listed as a 303(d) water body on the Federal Clean Water Act 303(d) list. The identified stressor for the Truckee River is sediment/siltation.

The proposed THP will be utilized to enhance forest resources within the Northstar Resort ownership. Ongoing drought conditions have hastened the effects of the fir engraver (name), dwarf mistletoe (name), and Cytospora canker. These pathogens are increasingly present beyond endemic levels, and threaten the health and viability of the current stand as well as future conifer growth. Seventy two acres of stands most impacted by these agents will be harvested utilizing the sanitation/salvage silvicultural system, where trees unlikely to live 10 years will be harvested[2].

A total of 440 acres of stands less adversely impacted by the ongoing drought will be thinned utilizing the commercial thinning silvicultural system. This system will allow for overall stand density to be reduced to ensure the continued growth and vigor of the stand. Thinning from below will be emphasized with the thinning, where suppressed, intermediate, and codominant trees will be removed to redistribute growth onto fewer stems per acre for the purposes of protecting forest health.

A total of 14 acres of meadow and wet area restoration are planned within the meadow system of West Martis Creek, located above Sawmill Reservoir. During this effort, the existing meadow and adjacent wet area will receive significant conifer reduction through application of the Aspen, Meadow and Wet Area Restoration silvicultural system. This system intends to encourage reestablishment of the West Martis Creek meadow system and wet area by significantly reducing the

[2] As per the "Ten-Year Risk Rating Systems for California Red Fir and White Fir: Development and Use" GTR PSW-115.

amount of young growth Lodgepole Pine that have captured the area and which continue to encroach upon the meadow system and its riparian vegetation. Low-impact harvester and forwarder will be utilized to implement timber operations within the restoration unit. The equipment will be restricted to existing roads, crossings, and landings.

The western boundary of the restoration unit will extend approximately 50 feet beyond the actual wet area boundary (as determined by soil and vegetation type) to reduce gradual conifer encroachment caused by seed cast from adjacent overstory trees. Likewise, the eastern and southern boundaries of the restoration unit will extend approximately 50 feet beyond the meadow boundary (watercourse transition line) to protect the integrity of the restoration effort by reducing seed cast from adjacent overstory conifers. This widened silvicultural boundary will also offer a reduced forwarding distance, so that trees removed from the east side of the meadow and watercourse can be directionally fell and forwarded to the road that binds the east side of the unit. This action will prevent the need to cross the West Martis Creek channel or meadow system. This widened boundary on the east side of the meadow restoration unit will contain individual trees and clusters of trees that will be retained for wildlife purposes. These wildlife inclusions will not be subject to timber harvest.

THP #4, Plan Submitter

The Plan Submitter of Record is Trimont Land Company. Trimont Land Company leases the land from CLP Northstar, LLC for operation of the Northstar California Ski Resort.

THP Item #14, Silviculture:

The stand tables below have been included to provide a general description of pre and post harvest stand structure. These stand tables were derived from reconnaissance level variable and fixed sample plots, and do not represent an enforceable stocking standard.

Commercial Thinning, Pre-Harvest and Post-Harvest Stand Data

PRE TREATMENT STAND TABLE, Commercial Thinning						
DBH	WF	WP	RF	JP		Total Live by DBH
0-4	140	3	9	3		153
6	112	1	6	3		119
8	43	0	35	4		78
10	22	1	22	2		45
12	8	0	10	3		17
14	9	0	10	2		19
16	4	0	5	3		9
18	4	0	4	1		7
20	2	1	3	2		5
22	1	0	1	1		2
24	1	0	1	2		1
26	1	0	0	2		1
28	1	0	1	0		1
30	1	1	0	1		1
32	0	1	0	1		1
34	0	1	0	0		1
36	1	0	0	0		1
Total	345	6	106	26		456
% Species Comp	0.76	0.01	0.23	0.06		
Basal Area/Acre		173				

POST TREATMENT STAND TABLE, Commercial Thinning						
DBH	WF	WP	RF	JP		Total Live by DBH
4	140	3	9	3		**155**
6	50	1	4	3		**58**
8	31	0	25	2		**58**
10	14	1	12	1		**28**
12	12	0	6	2		**20**
14	1	0	6	1		**8**
16	5	0	3	2		**10**
18	7	0	2	1		**10**
20	6	1	1	1		**9**
22	2	0	0	0		**2**
24	2	0	0	1		**4**
26	3	0	0	1		**4**
28	1	0	0	0		**1**
30	0	1	0	1		**2**
32	0	1	0	0		**1**
34	0	1	0	0		**1**
36	0	0	0	0		**0**
Total	**274**	**2**	**68**	**19**		**370**
% Species Comp	**0.74**	**0.01**	**0.18**	**0.05**		
Basal Area/Acre		130				

THP Item #14, Silviculture, con't:

The commercial thinning units will maintain MSP by retention of stocking no less the standards set forth in 14 CCR 933.3(a)(1)(A)(3) immediately following the completion of timber operations.

Sanitation/Salvage, Pre-Harvest and Post-Harvest Stand Data

PRE TREATMENT STAND TABLE, Sanitation/Salvage					
DBH	RF	WF	WP		Total Live by DBH
0-4	60	45	0		105
6	30	20	0		50
8	19	20	0		39
10	12	10	12		34
12	0	0	8		8
14	6	0	0		6
16	24	0	5		29
18	8	0	0		8
20	3	0	0		3
22	5	5	3		13
24	4	2	2		8
26	4	4	0		8
28	2	0	0		2
30	0	0	0		0
32	1	0	0		1
34	0	2	0		2
36	0	1	0		1
Total	171	102	30		303
% Species Comp	0.56	0.34	0.10		
Basal Area/Acre		193			

POST TREATMENT STAND TABLE, Sanitation/Salvage					
DBH	RF	WF	WP		Total Live by DBH
0-4	60	45	0		105
6	30	20	0		50
8	8	8	0		16
10	5	0	10		15
12	0	0	8		8
14	4	0	0		4
16	12	0	4		16
18	4	0	0		4
20	1	0	0		1
22	3	2	3		8
24	2	1	2		5
26	2	2	0		4
28	1	0	0		1
30	0	0	0		0
32	1	0	0		1
34	0	1	0		1
36	0	1	0		1
Total	129	76	27		232
% Species Comp	0.56	0.33	0.12		
Basal Area/Acre		130			

THP Item #14, Silviculture, con;t:
The sanitation/salvage units will meet MSP by meeting the stocking standards of 14 CCR 932.7(b) immediately following the completion of timber operations.

Wet Area/Wet Meadow Restoration Pre-Harvest and Post-Harvest Stand Data:

PRE TREATMENT STAND TABLE, Restoration				
DBH	**LP**	**RF**	**WF**	**Totals**
0-2	480	0	20	500
4	280	0	20	300
6	135	0	34	169
8	95	0	19	114
10	73	0	0	73
12	25	0	8	33
14	6	0	0	6
16	14	0	10	24
18	11	0	0	11
20	0	0	0	0
22	0	3	3	6
24	0	4	2	6
26	0	0	0	0
TPA	**1119**	**7**	**116**	**1242**
% Species	**0.92**	**0.01**	**0.02**	
BA/Ac				**223**

POST TREATMENT STAND TABLE, Restoration				
DBH	**LP**	**RF**	**WF**	**Totals**
0-2	0	0	10	10
4	0	0	0	0
6	0	0	0	0
8	0	0	0	0
10	0	0	0	0
12	0	0	0	0
14	0	0	0	0
16	0	0	3	3
18	0	0	0	0
20	0	0	0	0
22	0	2	2	4
24	0	3	1	4
26	0	1	0	1
TPA	**0**	**6**	**16**	**22**
% Species	**0.00**	**0.22**	**0.78**	
BA/Ac				**60**

Key:
WF = White fir (Abies concolor)
RF= Red fir (Abies magnifica)
WP = Western White Pine (Pinus monticola)
LP = Lodgepole Pine (Pinus contorta)

As per 14 CCR 933.4(e)(8)(A) and (B), MSP stocking standards of 14 CCR 933.1-933.3, 933.6, and the Resource Conservation Standards of 14 CCR 932.7 do not apply to the wet area and wet meadow restoration units. The basal area retention value in the post treatment stand table above is strictly an estimate of non-Lodgepole conifer stocking that will be retained as wildlife inclusions as described in THP Item #38, *Meadow and Wet Area Restoration Protection Measures, #3C. This basal area will not be present evenly across the restoration units.*

THP Item #17, Erosion Hazard Rating:

There are three main soil types within the THP area: Jorge, Tahoma, and Umpa series/complexes. Minor soils include Meiss, Waca, and Fugawee series/complexes. Though the Umpa soils have a calculated EHR of "Low", all other soils have a calculated EHR of "Moderate". For ease of practice, the entire THP area will be considered to be of EHR "Moderate". All soil types have been shown in the THP Soil Map, following.

THP Item #26(d) CA Department of Fish and Wildlife 1600 Permit:

Fish and Game Code (FGC) §1602 requires any entity (defined as any person, State or local governmental agency, or public utility) to notify the California Department of Fish and Wildlife (CDFW) before beginning any activity that will do one or more of the following: 1) Substantially obstruct or divert the natural flow of any river, stream, or lake; 2) Substantially change or use any material from the bed, channel, or bank of any river, stream, or lake; 3) Deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake.

Crossings #28 and #29 are temporary crossings of a Class I watercourse. Use of these crossings will not require substantial obstruction or diversion of the natural flow of the subject watercourse as the crossings will only be used when water is not present at the crossing site. Use of the crossings will not require any change or use of any material from the bed, bank, or channel of the watercourse. Also, any debris that enters the watercourse during use of the crossings, or timber operations associated therein, will be removed the same day as the deposition.

A standard low impact harvester will utilize each crossing without any modification needed. The harvester will have to utilize each crossing approximately 3 times to remove conifer material cut from the West Martis Creek meadow. Removal of riparian vegetation is not required for use of the crossings. Crossings #28 and #29 will only be used during the non-winter period of August 16th – October 14th annually. The use of the stated crossings, as mitigated, does not meet the criteria listed under FGC §1602 and therefore does not trigger notification of DFW in regards to Lake and Streambed Alteration.

THP Item #32, Biological Resources

A scoping process was conducted to identify species of plants, animals, and habitats that could potentially be impacted by the proposed project. Sources used include the California Department of Fish and Game Natural Diversity Database (CNDDB) (November 2015: Martis Peak, Truckee, and Tahoe City, 7.5' USGS Quads), California Native Plant Society (CNPS) nine-quad search (Martis Peak, Truckee, and Tahoe City 7.5' Quad), and the Selected Rare Plants of Northern California handbook. CNDDB and CNPS reports generated during the scoping process are available upon request.

Wildlife Scoping Results

SPECIES	STATUS	HABITAT	LIKLIEHOOD OF OCCURRENCE
Coopers Hawk (Accipiter cooperi)	CSSC	Nests in coniferous forest, oak woodlands, and other mixed evergreen forests. Forages in a variety of habitats, from open to dense forest.	Moderate; forest habitat within the project area may provide foraging habitat and potential breeding habitat.
Sharp-shinned hawk (Accipiter striaus)	CSSC	Nests in coniferous or mixed forests, usually selecting a conifer for the nest tree. Forages in a wide variety of coniferous, mixed, or deciduous woodlands.	Moderate; forest habitat within the project area may provide foraging habitat and potential breeding habitat.
Northern Goshawk (Accipiter gentilis)	CSSC; BOFS	Nests in mid to high elevation (>5000') dense (60%canopy cover) coniferous forest with large trees. Uses a variety of seral stages and habitat types for foraging.	Moderate; forest habitat within the project area may provide foraging habitat .
California Spotted Owl (Strix occidentalis occidentalis)	CSSC	Moderately dense (>40% canopy cover) mature coniferous forest for foraging and >70% cover for nesting.	Low; forest habitat within the project area may provide marginal foraging habitat.
Willow Flycatcher (Wmpidonax trailii)	C-E	Montane meadows that support abundant riparian deciduous shrubs (particularly willows) and remain wet through midsummer. Suitable riparian habitat typically supports standing or slow-moving water or saturated soils.	Moderate; Suitable habitat is located over 600 feet from harvest area.
Sierra Nevada yellow legged frog (Rana Sierrae)	F-E, C-T	Aquatic environments which do not freeze at the bottom during winter or dry up during summer/fall.	Low potential within the meadow enhancement unit only. The current Cal Fire Forest Practice GIS map of the range of this species

			indicates the THP is within the historic and current range of the SNYLF, yet does not contain critical habitat.
Black-backed woodpecker (Picoides artcticus)	C-C	Inhabits boreal and montane coniferous forests, especially areas with burned trees. Builds its nest in cavity in trunk of tree, with chips or wood fibers at the bottom of the canopy.	Low; The THP area does not contain the preferred (burned) habitat of this species.
Bald Eagle (Haliaetus leuccephalus)	BGEPA, C-FP, BOFS	Utilized shorelines, lake margins, and rive courses for both nesting and wintering. Most nests are within 1 mile of water, in large trees with open branches.	Present; Oct 2015 species was noted perched in a snag on the east side of Sawmill Reservoir. Silvicultural units do not overlap the 10 acre nest buffer zone.
Peregrine Falcon (Falco peregrinus)	C-FP, BOFS	Nests and roosts on protected ledges of high cliffs, typically adjacent to water bodies and wetlands that support avian prey.	Low; Suitable habitat for this species is not present within the THP area or immediate vicinity.
Great Gray Owl (Strix nebulosa)	C-E, BOFS	This species has been located in mixed conifer forests near meadows along the west slope of the Sierras, typically between 4,500 and 7,500 feet elevation. The species has been identified from Plumas County to Yosemite National Park.	Low; Suitable habitat for this species is not present within the THP area or immediate vicinity.
Greater Sage Grouse (Centrocerus urophasianus)	FC	Semiarid shrub steppe habitats, and sagebrush	Low; Suitable habitat is not present within the THP area or vicinity.
California Wolverine (Gulo gulo luteus)	C-T, C-FP	This species typically inhabits upper montane and alpine habitats at elevations of 4,300 to 7,300 feet.Known to use dense forest cover for travel. Sierra Nevada habitats utilized include red fir, mixed conifer, Lodgepole pine, subalpine conifer, wet meadows, and montane riparian habitats. Suitable habitat requires road density below 2miles per square	Low; Suitable habitat is not present within the THP area or vicinity.

		mile. The species is known to be sensitive to human disturbance.	
Pacific fisher (Martes pennant pacifica)	FC, CSSC	Forested habitats below 8,500 feet elevation with dense canopies and large trees, snags, and down logs, Pine, Douglas fir, and true fir stand types are known habitat of this species.	Low; fishers are considered extirpated from the Tahoe region and there are no current records of this species within the vicinity of the THP area.
Sierra Nevada Red Fox (Vulpes vulpes necator)	C-T	Species populations may be found in a variety of habitats, including alpine dwarf-shrub, wet meadow, subalpine conifer, Lodgepole pine, red fir, aspen, montane chaparral, montane riparian, mixed conifer, and ponderosa pine. Jeffrey pine, eastside pine, and montane hardwood-conifer also are used.	Moderate. Though this species is known to utilize a variety of habitats, no evidence of Sierra Nevada Red Fox has been present during prior biological surveys conducted within and directly adjacent to the Northstar ownership.
Great Blue Heron (Ardea Herodias)	BOFS	Marshes, swamps, shores, tideflats. Very adaptable & known to forage in any kind of calm fresh waters or slow-moving rivers. Nests in trees or shrubs near water, sometimes on ground in areas free of predators.	Present seasonally at Sawmill Reservoir (foraging only).
Townsend's Big-Eared Bat (Corynorhinus townsendii)	CSSC	Found throughout California, but the details of its distribution are not well known. This species is found in all but subalpine and alpine habitats, and may be found at any season throughout its range. Requires caves, mines, tunnels, buildings, or other man-made structures for roosting and cover. This nocturnal bat hibernates from October through April. Extremely sensitive to disturbance of roosting sites. A single visit may result in abandonment of the roost.	No habitat. The THP area and vicinity does not contain suitable roosting sites such as abandoned buildings, caves, or adits . Trees within the project area were sampled for the presence of basal hollows with entrance dimensions of 1' wide x 2' high or larger with internal hollows of 1.3'wide x 5' high, or larger. The THP area has been extensively logged under industrial timberland ownership since the early 1900's. As the current stand contains nominal snags or live trees with deformities, site conditions indicate that the prior harvests captured much of the conifer volume that would have otherwise been affected by insect and disease, potentially creating basal hollows that could be utilized by this species. The general lack of trees with suitable basal hollows, mines, adits, tunnels, and caves in the project area infers that within the project area, suitable roosting habitat and large maternity roost sites are unlikely.

Gray Wolf	F-E, C-E	Habitat generalist, known to use tundra, woodlands, forests, grasslands, and deserts. Historic distribution and abundance of the species is CA is unknown.	Low due to year round human presence within THP vicinity.

Key: C- SSC = California Department Fish and Wildlife Species of Special Concern
FC = Federal Candidate for listing as threatened or endangered under Endangered Species Act
CDFS = Cal Fire Sensitive Species
FSS = Forest Service Sensitive Species
C-C – California Candidate for Listing
C-T = California Threatened
C-FP = California Fully Protected
FE = Federal Endangered
BGEPA = Protected under the Bald and Golden Eagle Protection Act

Wildlife Survey Results

During the RPF's 2015 wildlife survey, a bald eagle and bald eagle's nest were identified at Sawmill Reservoir. The nest site is located outside of the THP area and the 10-acre buffer zone does not include any silvicultural units. A great Blue Heron was also noted utilizing Sawmill Reservoir. No other species of status were noted within the THP area or immediate vicinity. Mitigations have been provided in THP Item #32.

THP Item #32, Biological Resources, con't:

Floristic Scoping Results

Scoping for floristic resources included the California Natural Diversity Database and the California Native Plant Society. The CNPS search included the Martis Peak 7.5' quad, where the project is located, and the eight surrounding quadrangles. As a result of these scoping efforts, the following Master Plant List of special-status plant species was developed. From this master plant list, species requiring habitat which does not exist within the THP area were removed, providing the Focused Plant List, following.

Master Plant List – Northstar Enhancement THP
CNDDB and CNPS Nine Quad Search Results

Scientific Name	Common Name	Lifeform	CNPS Status	Habitat	Blooming Period	Potential for Occurrence
Arabis rigidissima var. demota	Galena Creek rockcress	perennial herb	1B.2	Upper Montane Coniferous Forest, Broadleaved forest	August	Moderate
Artemisia tripartita ssp. tripartita	threetip sagebrush	perennial shrub	2B.3	Upper Montane Coniferous Forest	August	Moderate
Botrychium ascendens	upswept moonwort	perennial rhizomatous herb	2B.3	Lower Montane Coniferous Forest, meadows, seeps	July-Aug	Low potential within meadow restoration unit only.
Botrychium crenulatum	scalloped moonwort	perennial rhizomatous herb	2B.2	Upper Montane Coniferous Forest, Lower Montane Coniferous Forest, Meadows, Springs, Marsh, Swamps	July-Sept	Low potential within meadow restoration unit only.
Botrychium lunaria	common moonwort	perennial rhizomatous herb	2B.3	Upper Montane Coniferous Forest, Lower Montane Coniferous Forest, Meadows, Springs, Marsh, Swamps	August	Low potential within meadow restoration unit only.
Botrychium minganense	Mingan moonwort	perennial rhizomatous herb	2B.2	Upper Montane Coniferous Forest, Lower Montane Coniferous Forest, Meadows, Springs, Marsh, Swamps	July-Sept	Low potential within meadow restoration unit only..
Carex davyi	Davy's sedge	perennial herb	1B.3	Subalpine forest, Upper Montane Coniferous Forest	May-Aug	Moderate
Carex lasiocarpa	woolly-fruited sedge	perennial rhizomatous herb	2B.3	Bogs, fens, Marsh, Swamps	June-July	Not likely, THP area does not contain suitable habitat
Carex limosa	mud sedge	perennial rhizomatous herb	2B.2	Bogs and fens	June-Aug	Not likely, THP area does not contain suitable habitat

Drosera anglica	English sundew	perennial herb (carnivorous)	2B.3	Meadows, seeps, Marsh Swamps, Upper Montane Coniferous Forest, Bogs Fens	June-Aug	Low potential within meadow restoration unit only.
Epilobium oreganum	Oregon fireweed	perennial herb	1B.2	Meadows, seeps, Marsh Swamps, Upper Montane Coniferous Forest, Bogs Fens	June-Sept	Low potential within meadow restoration unit only.
Erigeron eatonii var. nevadincola	Nevada daisy	perennial herb	2B.3	Great Basin Scrub, Lower Montane Coniferous Forest, Pinyon Juniper	May-July	Not likely, THP area does not contain suitable habitat
Eriogonum umbellatum var. torreyanum	Donner Pass buckwheat	perennial herb	1B.2	Meadows, Seeps, Upper Montane Coniferous Forest	July -Sept	Low potential within meadow restoration unit only.
Glyceria grandis	American manna grass	perennial rhizomatous herb	2B.3	Upper Montane Coniferous Forest, Lower Montane Coniferous Forest, bogs, fens, Marsh, Swamps	June-Aug	Not likely, THP area does not contain suitable habitat
Ivesia sericoleuca	Plumas ivesia	perennial herb	1B.2	Great Basins Scrub, Lower Montane Coniferous Forest, Meadows, Seeps Vernal Pools	May-Oct	Moderate
Juncus luciensis	Santa Lucia dwarf rush	annual herb	1B.2	Great Basins Scrub, Lower Montane Coniferous Forest, Meadows, Seeps Vernal Pools, chaparral	April-July	Low potential within meadow restoration unit only.
Meesia uliginosa	broad-nerved hump moss	moss	2B.2	Meadows, seeps, Marsh, Swamps, Upper Montane Coniferous Forest, Bogs Fens	Oct	Low potential within meadow restoration unit only.
Potamogeton robbinsii	Robbins' pondweed	perennial rhizomatous herb	2B.3	Marshes, Swamps	July-Aug	Not likely, THP area does not contain suitable habitat
Rhamnus alnifolia	alder buckthorn	perennial deciduous shrub	2B.2	Lower Montane Coniferous Forest, Meadows, Seeps, Riparian Scrub	May-July	Low potential within meadow restoration unit only.
Rorippa subumbellata	Tahoe yellow cress	perennial rhizomatous herb	1B.1	Lower Montane Coniferous Forest, Meadows, Seeps, Decomposed Granitic beaches	May-Sept	Not likely, THP area does not contain suitable habitat

Scutellaria galericulata	marsh skullcap	perennial rhizomatous herb	2B.2	Lower Montane Coniferous Forest Marshes, Seeps Meadows, Swamps	June-Sept	Low potential within meadow restoration unit only.
Sphaeralcea munroana	Munro's desert mallow	perennial herb	2B.2	Great Basin Scrub	May-June	Not likely, THP area does not contain suitable habitat
Stuckenia filiformis ssp. alpina	slender-leaved pondweed	perennial rhizomatous herb	2B.2	Marshes, Swamps	May-July	Not likely, THP area does not contain suitable habitat
Botrychium montanum	Western goblin	perennial rhizomatous herb	2B.1	Lower Montane Coniferous Forest Seeps, Meadows, Upper Montane Coniferous Forest	July-Sept	Low potential within meadow restoration unit only.
Carex praticola	Northern meadow sedge	Perennial herb	2B.2	Meadows, Seeps	May –July	Low potential within meadow restoration unit only.
Boechera tiehmii	Tiehm's rock cress	Perennial herb	1B.2	Granitic alpine boulder and rock fields 9700-12,000 ft.	July-Aug	Not likely, THP area does not contain suitable habitat
Epilobeum palustre	Marsh willowherb	Perennial herb	2B.3	Bogs and fens, meadow, seeps	July-August	Low potential within meadow restoration unit only.
Erigeron riser	Starved daisy	Perennial herb	1B	Cracks in granite outcrops	June-October	Moderate
Helodium blandowii	Blandow's bog-moss	Perennial herb	2	Bogs and fens with calcareous groundwater in subalpine coniferous forest	Unknown	Not likely, THP area does not contain suitable habitat
Hulsea brevifolia	Short-leaved hulsea	Perennial herb	1B	Upper and lower montane coniferous forest, primarily red fir forests, on volcanis or granitic gravel or sand, or on slate.	May-August	Low; THP area contains marginal suitable habitat, though the nearest documented occurrence is a 1927 El Dorado County record.
Lewisia longipetala	Long-petaled lewisia	Perennial herb	1B	North exposure on slopes and ridge tops in alpine boulder and rock field, and subalpine coniferous forest.	July-August	Not likely, THP area does not contain suitable habitat
Potamogeton epihydrus	Nutall's ribbon-pondweed	Perennial herb	2	Shallow freshwater marshes and swamps	June-September	Not likely, THP area does not contain suitable habitat

Schoenoplectus subterminalis	Water bulrush	Perennial herb	2	Bogs and fens, marshes and swamps	July-August	Not likely, THP area does not contain suitable habitat
Astragalus austniae	Austin's astragalus	Perennial herb	1B.3	Alpine Boulder rock Fields	July-Sept	Not likely, THP area does not contain suitable habitat
Claytonia megarhiza	Fell-fields claytonia	Perennial herb	2B.3	Alpine Boulder rock Fields, Subalpine Coniferous Forest	July-Sept	Not likely, THP area does not contain suitable habitat
Lewisia longipetala	Long petaled lewisia	Perennial herb	1B.3	Alpine Boulder Rock Field, Subalpine Coniferous Forest	July - Sept	Not likely, THP area does not contain suitable habitat
Mertesia oblongifolia var. oblongifolia	Sagebrush bluebells	Perennial herb	2B.2	Great Basin Scrub, Lower Montane Coniferous Forest, Meadows, Seeps, Subalpine Coniferous Forest	April –July	Low potential within meadow restoration unit only.
Nardia hiroshii	Hiroshi's flapwort	Liverwort	2B.3	Meadows, Seeps, Damp Soil with Granitic bedrock	N/A	Low potential within meadow restoration unit only.
Phacelia stebbinsii	Stebbin's phacelia	Annual herb	1B.2	Cismontane woodland, Meadows, Seeps	May – July	Not likely, THP area does not contain suitable habitat

Key: *List 1A: Plants Presumed Extinct in California*
List 1B: Plants Rare, Threatened, or Endangered in California and Elsewhere
List 2: Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere
Threat Ranks:

- *0.1-Seriously threatened in California (high degree/immediacy of threat)*
- *0.2-Fairly threatened in California (moderate degree/immediacy of threat)*
- *0.3-Not very threatened in California (low degree/immediacy of threats or no current threats known)*

THP Item #32, Biological Resources, con't:

Below is an itemization of the most extensive soil types within the THP Area. The Natural Resource Conservation Service, Official Series Description, yielded the following information on soils present within the THP area:

Soils Present Within the Northstar Enhancement THP Area

Soil Name	Parent Material	Other
Jorge very Stony Sandy Loam	Volcanic rock	Major component of THP area; Well-drained, low to high runoff, moderate permeability.
Jorge Tahoma Complex	Volcanic rock	Major component of THP area; Well-drained, low to high runoff, moderate permeability.
Jorge-Rubble Land Complex	Volcanic Rock	Minor Component of THP area (<1%); Well-drained, low to high runoff, moderate permeability.
Umpa stony sandy loam	Residuum weathered from Andesite	Major component of THP area; Well drained, medium to rapid runoff, moderately rapid permeability.
Meiss-Waca-Cryumbrepts wet complex	Residuum weathered from Andesite	Minor Component of THP area; Somewhat excessively drained, Very high runoff, moderately rapid permeability.
Jorge-Cryumbrepts, wet-Tahoma complex	Alluvium	Minor Component of THP area; Poorly drained, slow permeability, moderate to high runoff.
Umpa Rock Outcrop Complex	Residuum weathered from Andesite	Minor Component of THP area; Well drained, medium to rapid runoff, moderately rapid permeability.
Fugawee-Tahoma Complex	Residuum weathered from Igneous rock	Minor Component of THP area; Well drained, slow to rapid runoff, moderate permeability.
Jorge-Waca-Tahoma Complex 30-50%	Volcanic rock	Minor component of THP area; Well-drained, low to high runoff, moderate permeability.

Site inspection of the THP area indicated the following habitats are present within and immediately adjacent to the THP boundaries:

Habitats Present Within Northstar Enhancement THP Area

Habitat Type	Description
White Fir	WHR habitat stages 4P and 4M.
Sierran Mixed Conifer	WHR habitat stages 4P and 4M.
Red fir	WHR habitat stages 4P and 4M.
Lodgepole Pine	WHR habitat stage 3M
Wet Meadow	WHR habitat stages 1P and 1M

THP Item #32, Biological Resources, con't:

The following focused plant list indicates the specific plants that may inhabit the THP area, given the soils and habitat(s) present.

Focused Plant List
Northstar Enhancement THP

Name	Life Form/ Blooming Period	Habitat	Status	Likelihood of Occurrence
Galena Creek Rock Cress (Arabis rigidissima var. demote)	Aug	Broadleaved Upland Forest; Upper Montane Coniferous Forest	1B.2	Moderate
Threetip sagebrush (Artemisia tripartite ssp. Tripartite)	Aug	Upper Montane Coniferous Forest	2B.3	Moderate
Davy's sedge (Carex davyi)	May-August	Subalpine Coniferous Forest Upper Montane Coniferous Forest	1B.3	Moderate
Plumas Ivesia (Ivesia sericoleuca)	May-Oct	Great Basins Scrub, Lower Montane Coniferous Forest, Meadows, Seeps Vernal Pools	1B.2	Moderate
Western goblin (Botrychium montanum)	July-Sept	Lower Montane Coniferous Forest Seeps, Meadows, Upper Montane Coniferous Forest	2B.1	Low potential within meadow restoration unit only.
upswept moonwort Botrychium ascendens	July-Aug	Lower Montane Coniferous Forest, meadows, seeps	2B.3	Low potential within meadow restoration unit only.
scalloped moonwort Botrychium crenulatum	July-Sept	Upper Montane Coniferous Forest, Lower Montane Coniferous Forest, Meadows, Springs, Marsh, Swamps	2B.2	Low potential within meadow restoration unit only.
common moonwort Botrychium lunaria	August	Upper Montane Coniferous Forest, Lower Montane Coniferous Forest, Meadows,	2B.3	Low potential within meadow restoration unit only.

		Springs, Marsh, Swamps		
Mingan moonwort Botrychium minganense	July-Sept	Upper Montane Coniferous Forest, Lower Montane Coniferous Forest, Meadows, Springs, Marsh, Swamps	2B.2	Low potential within meadow restoration unit only.
English sundew Drosera anglica	June-Aug	Meadows, seeps, Marsh Swamps, Upper Montane Coniferous Forest, Bogs Fens	2B.3	Low potential within meadow restoration unit only.
Oregon fireweed Epilobium oreganum	June-Sept	Meadows, seeps, Marsh Swamps, Upper Montane Coniferous Forest, Bogs Fens	1B.2	Low potential within meadow restoration unit only.
Donner Pass buckwheat Eriogonum umbellatum var. torreyanum	July -Sept	Meadows, Seeps, Upper Montane Coniferous Forest Great Basins Scrub,	1B.2	Low potential within meadow restoration unit only.
Santa Lucia dwarf rush Juncus luciensis	April-July	Lower Montane Coniferous Forest, Meadows, Seeps Vernal Pools, chaparral	1B.2	Low potential within meadow restoration unit only.
broad-nerved hump moss Meesia uliginosa	Oct	Meadows, seeps, Marsh, Swamps, Upper Montane Coniferous Forest, Bogs Fens	2B.2	Low potential within meadow restoration unit only.
alder buckthorn Rhamnus alnifolia	May-July	Lower Montane Coniferous Forest, Meadows, Seeps, Riparian Scrub	2B.2	Low potential within meadow restoration unit only.
marsh skullcap Scutellaria galericulata	June-Sept	Lower Montane Coniferous Forest Seeps, Meadows, Upper Montane Coniferous Forest	2B.2	Low potential within meadow restoration unit only.

Western goblin Botrychium montanum	July-Sept	Lower Montane Coniferous Forest Marshes, Seeps Meadows, Swamps	2B.1	Low potential within meadow restoration unit only.
Northern meadow sedge Carex praticola	May –July	Meadows, Seeps	2B.2	Low potential within meadow restoration unit only.
Marsh willowherb Epilobeum palustre	July-August	Wet/moist soils of meadows, seeps, and streambanks in upper and lower montane forests, 5300-11,000 ft elevation	2B.3	Low potential within meadow restoration unit only.
Short-leaved hulsea Hulsea brevifolia	May-August	Great Basin Scrub, Lower Montane Coniferous Forest, Meadows, Seeps, Subalpine Coniferous Forest	1B	Low potential within meadow restoration unit only.
Sagebrush bluebells Mertesia oblongifolia var. oblongifolia	April –July	Meadows, Seeps, Damp Soil with Granitic bedrock	2B.2	Low potential within meadow restoration unit only.
Hiroshi's flapwort Nardia hiroshii	N/A	Great Basin Scrub, Lower Montane Coniferous Forest, Meadows, Seeps, Subalpine Coniferous Forest	2B.3	Low potential within meadow restoration unit only.

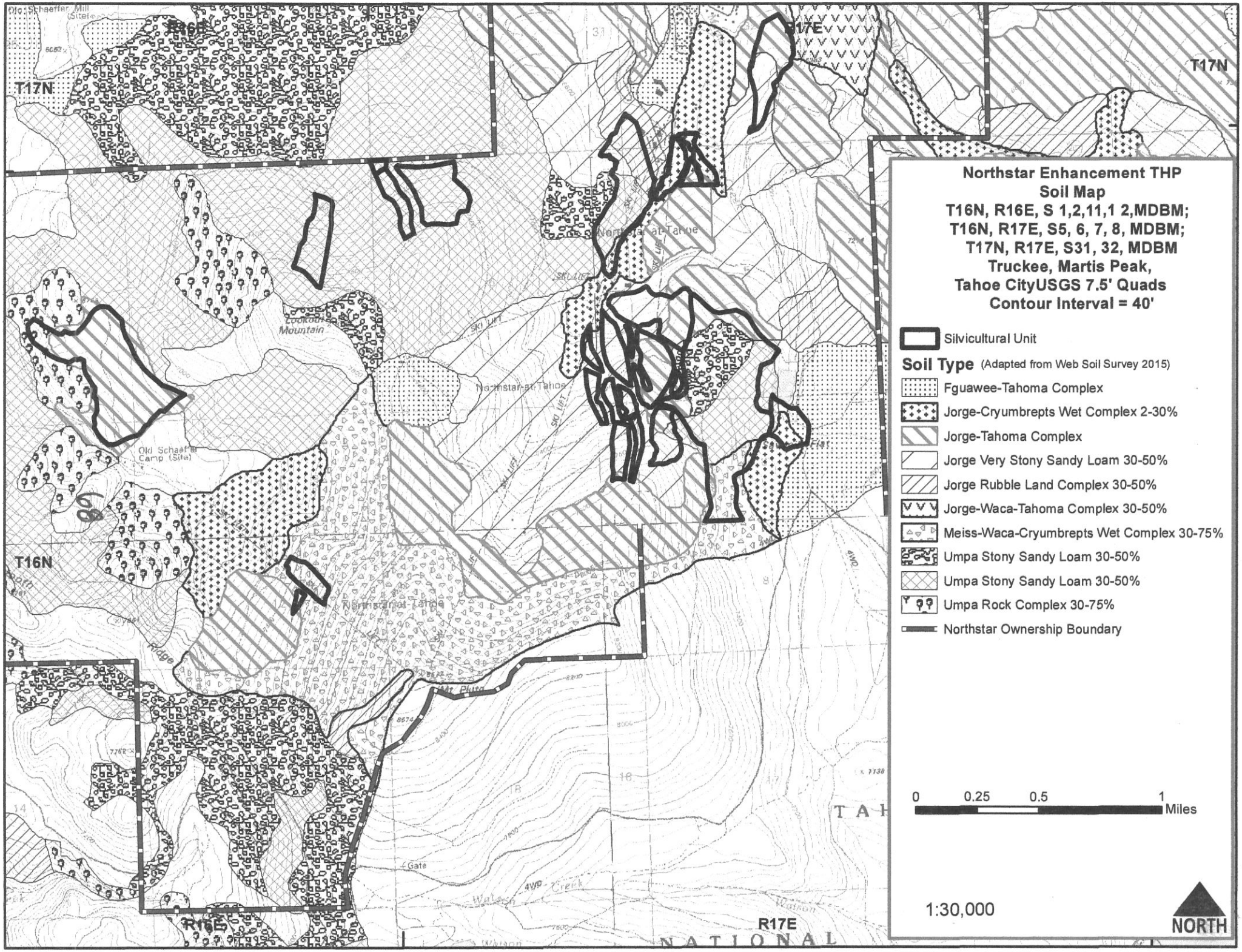
Floristic Survey Results

The RPF conducted a survey for the species identified on the focused plant list during July for all species that could potentially inhabit the wet area and meadow restoration units. All other species were surveyed for during the month of August 2015. First, the RPF conducted a review of botanical records of known occurrences within the THP area and vicinity. Next, aerial photographs and CWHR GIS layers were reviewed to aid in determination of habitat types present within and adjacent to the THP area. A cursory level pre-survey was then conducted to verify habitat types present and anticipate the required extent of survey. Prior to the field survey, a scoping process was conducted to determine what species may inhabit the THP area. From this scoping process a target or "focused" plant list was formed for use during the field survey.

The RPF ran east-west transects at a spacing of 3 chains apart at predesignated locations throughout each habitat type of the THP area. Areas were designated both for their ability to adequately represent the THP area as well as likelihood of containing more unique "niche" species. Five feet on each side of each transect was searched for the species listed on the Focused Plant List, above. None of the species on the focused plant list were located as a result of the floristic survey.

THP Item #32, Biological Resources, con't:

If any species is located during active timber operations, the RPF will establish a 50-foot Equipment Exclusion Zone around the identified population(s). No timber operations are to occur within the 50-foot buffer. The identified area(s) will be excluded from operations until a site-specific consultation with the California DFW can be performed. Operations may occur/continue in areas that are not expected to contain suitable habitat.


Northstar Enhancement THP
Soil Map
T16N, R16E, S 1,2,11,1 2,MDBM;
T16N, R17E, S5, 6, 7, 8, MDBM;
T17N, R17E, S31, 32, MDBM
Truckee, Martis Peak,
Tahoe CityUSGS 7.5' Quads
Contour Interval = 40'
Silvicultural Unit
Soil Type (Adapted from Web Soil Survey 2015)
Fguawee-Tahoma Complex
Jorge-Cryumbrepts Wet Complex 2-30%
Jorge-Tahoma Complex
Jorge Very Stony Sandy Loam 30-50%
Jorge Rubble Land Complex 30-50%
Jorge-Waca-Tahoma Complex 30-50%
Meiss-Waca-Cryumbrepts Wet Complex 30-75%
Umpa Stony Sandy Loam 30-50%
Umpa Stony Sandy Loam 30-50%
Umpa Rock Complex 30-75%
Northstar Ownership Boundary
0 0.25 0.5 1 Miles
1:30,000
NORTH
T17N
R16E
R17E
T16N
Old Schaeffer Mill (Site)
Old Schaeffer Camp (Site)
Northstar-at-Tahoe
Lookout Mountain
Mt. Pluto
Watson Creek
Gate
4WD
SKI LIFT

US Fish and Wildlife Service
Revised Guidance on Site Assessments and Field Surveys
For the California Red-legged Frog
August 2005

According to the U.S. Fish and Wildlife Service Revised Guidance on Site Assessments and Field Surveys for the California Red-Legged Frog, August 2005, two procedures are recommended to accurately assess the likelihood of California Red Legged Frog (CRF) presence in the vicinity of a project site. The procedures are (1) an assessment of CRF locality records and potential CRF habitat in and around the project area and, (2) focused field surveys of breeding pools and other associated habitat to determine whether CRF are likely to be present.

In my January 25, 2007 discussion with Jennifer Navicky, California Department of Fish and Wildlife, Ms.Navicky suggested completing procedure #1 above (NDDB records and site assessment) for each THP, and #2 (focused filed survey) only if the CRF is known to exist within two miles of the project area.

Procedure #1, NDDB Records and Site Assessment, Questions #1-3 as per Guidance

#1 – Is the site within the current or historic range of the CRF?

The THP is located at elevations of 6,200' to 7,600 feet above sea level, which is 2,900' – 4,500' higher in elevation than any known population in northern California.

#2 – Are there known records of CRF at the site or within a 1-mile radius of the site?

Prior to site assessment for suitable CRF habitat within and adjacent to the project area, the California Natural Diversity Data Base was consulted to determine if any known location(s) of CRF are recorded within the project area or two miles from the project boundaries. The Martis Peak 7.5' quadrangle was queried by the CNDDB (November 2015) indicating there are no known populations of CRF within the project area or within one mile of the project area boundaries.

#3 – What are the habitats within the project site and within 1-mile of the project boundary?

The habitat within the project area and within one mile of project boundaries was analyzed to determine if (1) the likelihood of presence of CRF and, (2) necessity to conduct a field survey. The following habitat types and attributes were surveyed for:

Breeding Habitat: According to the USFWS 2005 Guidance, all life history stages are most likely to occur in and around breeding sites, therefore proper investigation of breeding habitat attributes is crucial for a valid site assessment. Breeding habitat is known to include:

- coastal lagoons
- marshes
- springs
- ponds
- ponded/backwater portions of streams
- stock ponds
- permanent/semi-permanent natural ponds
- irrigation ponds
- siltation ponds

Specifically, CRF eggs are often found in ponds or backwater pools in creeks attached to emergent vegetation such as cattails (*Typha*), sedges (*Scirpus*), dense woody riparian vegetation, and willows (*Salix* spp.). However, suitable breeding habitat may include areas void of riparian vegetation, such as stock ponds. CRF larvae may remain within the breeding habitat until metamorphosis occurs during the summer months. Following metamorphosis, young CRF may be found in slower moving, shallow riffle zones in creeks or along pond margins.

Summer Habitat: According to the USFWS 2005 Guidance, CRF often disperse from their breeding habitat to seek summer habitat if water is no longer available on site. CRF are known to prefer areas with not only water, but shelter from predators, including emergent vegetation, undercut banks, semi-submerged large woody debris in a

pond or deep pool in a creek. CRF are also known to seek shelter in small mammal burrows over 300 feet from the water. Traditional upland habitats may also serve as summer CRF habitat if ephemeral bodies of water are present.

Upland Habitat: According to the USFWS 2005 Guidance, a variety of upland settings may be suitable habitat for CRF. Open grasslands containing seeps and/or springs, though not suitable for breeding, may provide foraging habitat and shelter for dispersing frogs. The first rains of fall often trigger CRF to travel overland through upland habitats. Dispersal distances for the CRF are considered to be dependent on habitat availability and environmental conditions. During my January 29, 2007 discussion with Pete Trenham of the US Fish and Wildlife Service, Mr.Trenham stated that CRF are known to travel 2-3 kilometers through natural habitat during wet weather. Specifically, CRF may disperse to seek additional water supplies, as natural drying of some sites is inevitable. This information elucidates the importance of habitat assessment surrounding the project area.

An inventory of CRF habitat within the plan area and a 2-mile radius of the plan boundaries is below:

Aquatic Habitats within Project Area:

West Martis Creek and tributaries.

Aquatic Habitats within 2-mile Vicinity of Project:

The area within two miles of the THP area is within the Upper Martis Creek and West Martis Creek Watershed. This watershed is characterized by steep mountain slopes with a relatively flat basin floor. This watershed exhibits little evidence indicating the presence of perennial or ephemeral drainage courses that would convey a significant quantity of runoff other than the watercourses that directly feed Martis Creek. The vast majority of runoff within the West Martis Creek watershed occurs as sheet flow, interrupted by downed timber, duff, and rock outcroppings. The assessment area contains portions of the following aquatic resources: West Martis Creek, West Fork of West Martis Creek, Sawmill Reservoir, Schaeffer Creek, and Middle Martis Creek, each briefly described below:

West Fork of West Martis Creek: This watercourse winds through heavily forested pockets between ski runs, occasionally being piped under ski runs through existing culverts and similar structures. Above the Bid Springs Day Lodge At Northstar California, a 48-inch culvert carries stream flow from the "mid-mountain" area northeast to the "Village" area, where it is returned to it's natural channel. This watercourse continues on an a similar obstacle course through the Northstar California resort, through and around additional ski runs, skier bridges, recreation centers and condominiums. This watercourse joins West Martis Creek above an open meadow prior to intersecting Northstar drive, where it continues northeasterly through generally residential settings.

West Martis Creek: This watercourse northerly though the Northstar California ski resort. An existing water supply and reservoir intercept West Martis Creek at 6,900 feet elevation. West Martis Creek flows though a moderately forested and well-defined channel below the reservoir for approximately 4000 feet before the slope lessens and vegetation changes to predominantly riparian species.

Middle Martis Creek: This watercourse flows adjacent to State Route 267, a permanent public road. The channel has been confined to the side of the highway. Riparian vegetation is composed of willows and alders thickets along much of this watercourse.

Schaeffer Creek: This watercourse originates south of the THP area and is tributary to Martis Creek. This watercourse traverses conifer forests with riparian inclusions consisting of salix willow.

The significant habitat fragmentation present amongst these watercourses, and elevations above 6000 feet, indicates these streams do not contain the features indicative of CRF suitable habitat.

CRF Survey, con't:

Upland Habitat within Project Area:

The THP area contains Sierran Mixed Conifer, Lodgepole Pine, White Fir, and Red fir tree habitats of stages 3P, 3M, 4P and 4M. Elevation is approximately 6,200' – 7,600' above sea level. Winter snow accumulations inundate the project area for duration of approximately 4-5 months. Springs, seeps, or other forms of water are present in only two of the silvicultural units. Due to elevations over 2900 feet above any known population of CRF, it is also unlikely that this habitat is suitable for this species.

Upland Habitat within 2-mile Vicinity of Project:

Elevations of the assessment area range from 5,900 feet along West Martis Creek in Northstar California, to 8,104 feet at Mount Pluto. The dominant vegetation type within the 2-mile assessment area is a blend of Jeffrey Pine and White Fir forest types. Sagebrush, greenleaf Manzanita, tobacco brush, and pinemat Manzanita are the predominant brush species. Residual conifers are generally between 6"-24" DBH, with canopy closure ranging from 10%-60%. This watershed exhibits little evidence indicating the presence of perennial or ephemeral drainage courses that would convey a significant quantity of runoff other than the watercourses that directly feed Martis Creek. The vast majority of runoff within the West Martis Creek watershed occurs as sheet flow, interrupted by downed timber, duff, and rock outcroppings.

The assessment area is currently being used for summer and winter recreation, though commercial logging has an extensive past in the assessment area. Multiple seasonal logging roads traverse the watershed. State Route 267, Northstar California ski resort, Highlands View Drive, and Northstar Drive are significant cultural features present in the upland habitat of the assessment area.

The habitat types and stages described above generally are not known to contain the features indicative of CRF suitable habitat, as described in #3, Habitat types and attributes, above. Predominant land uses within the vicinity of the project boundaries do not favor recruitment or retention of habitat attributes reportedly preferred by the CRF. Further, the project area and surrounding vicinity incorporates elevations of 5840' to 8104' above sea level, which is well above the known historic elevation preference of the CRF. This site assessment, coupled with land use information, barriers to CRF movement, and established data reporting no CRF findings in the Martis Valley area indicates that neither the project area nor the surrounding vicinity is suitable CRF habitat.